

CLAIMS:

1. An image reconstruction apparatus, which uses the projection data obtained by detecting the radiation beam transmitted through a subject with a plurality of radiation beam detector elements to reconstruct the tomographic image of said subject, comprising:

a noncontinuous data processing device, for performing a predetermined filtering to data except for any discrete area including data of noncontinuous value, among the projection data arranged in the order of sequence of said radiation beam detector elements array, to reassemble said noncontinuous data of discrete area with the data having said filtering undergone to provide the projection data for reconstructing said tomographic image.

2. An image reconstruction apparatus according to claim 1, wherein:

said noncontinuous data processing device includes:

a separator device for isolating any noncontinuous data in said discrete area from said projection data, converting said isolated noncontinuous projection data to continuous data so as for the value to change consistently, and serving only those continuous data for said filtering; and

a synthesizer device for synthesizing said continuous data derived from said filtering and said noncontinuous data of discrete area to reassemble the projection data to be provided to said image reconstruction device.

3. An image reconstruction apparatus according to claim 1, wherein:

said noncontinuous data processing device includes:

an extractor device, for extracting said discrete areas based on the difference between the projection data having said filtering undergo and the projection data not having said filtering undergo; and

a synthesizer device for substituting the extracted noncontinuous data of said discrete area in the projection data having said filtering undergo with

the projection data not having the filtering to prepare the projection data to be provided to said image reconstructor device.

4. An image reconstruction apparatus according to claim 1, wherein:
said radiation beam is X-ray.

5. An image reconstruction method, which uses the projection data obtained by detecting the radiation beam transmitted through a subject with a plurality of radiation beam detector elements to reconstruct the tomographic image of said subject, comprising a step of:

performing a predetermined filtering to data except for any discrete area including data of noncontinuous value, among the projection data arranged in the order of sequence of said radiation beam detector elements array, to reassemble said noncontinuous data of discrete area with the data having said filtering undergone to provide the projection data for reconstructing said tomographic image.

6. An image reconstruction method according to claim 5, further comprising the steps of:

isolating any noncontinuous data in said discrete area from said projection data, converting said isolated noncontinuous projection data to continuous data so as for the value to change consistently, and serving only those continuous data for said filtering; and

synthesizing said continuous data derived from said filtering and said noncontinuous data of discrete area to reassemble the projection data to be provided to said image reconstruction.

7. An image reconstruction method according to claim 5, further comprising the steps of:

extracting said discrete areas based on the difference between the

projection data having said filtering undergo and the projection data not having said filtering undergo; and

substituting the extracted noncontinuous data of said discrete area in the projection data having said filtering undergo with the projection data not having the filtering to prepare the projection data to be provided to said image reconstruction.

8. An image reconstruction method according to claim 5, wherein:
said radiation beam is X-ray.

9. A radiographic tomography imaging apparatus, comprising:
a radiation detector, having a radiation emitter device and a plurality of radiation detector elements placed opposedly on the both sides of a subject; and
an image reconstruction apparatus, for reconstructing a tomographic image of said subject based on the projection data obtained by detecting the radiation transmitted through said subject by said plurality of radiation detector elements;

wherein:

said image reconstruction apparatus comprises a noncontinuous data processing device, for performing a predetermined filtering to data except for any discrete area including data of noncontinuous value, among the projection data arranged in the order of sequence of said radiation beam detector elements array, to reassemble said noncontinuous data of discrete area with the data having said filtering undergone to provide the projection data for reconstructing said tomographic image.

10. A radiographic tomography imaging apparatus, according to claim 9, wherein:

said noncontinuous data processing device includes:

a separator device for isolating any noncontinuous data in said

16CT03012

discrete area from said projection data, converting said isolated noncontinuous projection data to continuous data so as for the value to change consistently, and serving only those continuous data for said filtering; and

a synthesizer device for synthesizing said continuous data derived from said filtering and said noncontinuous data of discrete area to reassemble the projection data to be provided to said image reconstruction device.

11. A radiographic tomography imaging apparatus, according to claim 9, wherein:

said noncontinuous data processing device includes:

an extractor device, for extracting said discrete areas based on the difference between the projection data having said filtering undergo and the projection data not having said filtering undergo; and

a synthesizer device for substituting the extracted noncontinuous data of said discrete area in the projection data having said filtering undergo with the projection data not having the filtering to prepare the projection data to be provided to said image reconstructor device.

12. A radiographic tomography imaging apparatus, according to claim 9, wherein:

said radiation emitter device includes an X-ray tube.

13. A radiographic tomography imaging apparatus, according to claim 12, further comprising:

a collimator for shaping the X-ray emitted from said X-ray tube into an X-ray beam of sector form.

14. A radiographic tomography imaging apparatus, according to claim 9, wherein:

said radiation detector device is composed of an array of a plurality of X-

16CT03012

ray detector elements.

15. A radiographic tomography imaging apparatus according to claim 9, wherein:

said image reconstructor device uses the filtered back projection method.

16. A radiographic tomography imaging apparatus according to claim 14, wherein:

said radiation detector device is composed of a combination of scintillator and photodiode.